

Area of a Triangle Using $\frac{1}{2}ab \sin C$ *fluency*

ANSWERS



Find the area to 1 decimal place. Lengths are in cm.

1 $a = 5, b = 7, C = 40^\circ$ 11.2 cm^2

2 $a = 8, b = 6, C = 55^\circ$ 19.7 cm^2

3 $a = 10, b = 4, C = 120^\circ$ 17.3 cm^2

4 $a = 9, b = 9, C = 72^\circ$ 38.5 cm^2

5 $a = 3.5, b = 6, C = 100^\circ$ 10.3 cm^2

6 $a = 12, b = 15, C = 28^\circ$ 42.3 cm^2



Find the exact area. Lengths are in cm.

7 $a = 6, b = 8, C = 30^\circ$ 12 cm^2

8 $a = 4, b = 6, C = 60^\circ$ $6\sqrt{3} \text{ cm}^2$

9 $a = 10, b = 12, C = 90^\circ$ 60 cm^2

10 $a = 5, b = 7, C = 150^\circ$ 8.75 cm^2

11 $a = 8, b = 3, C = 120^\circ$ $6\sqrt{3} \text{ cm}^2$

12 $a = 2, b = 9, C = 45^\circ$ $\frac{9\sqrt{2}}{2} \text{ cm}^2$



The area is given. Find the acute angle C to 1 dp. Lengths in cm, areas in cm^2 .

13 $a = 8, b = 10, \text{area } 20$ $C = 30.0^\circ$

14 $a = 6, b = 9, \text{area } 15$ $C = 33.7^\circ$

15 $a = 12, b = 5, \text{area } 25$ $C = 56.4^\circ$

16 $a = 7, b = 7, \text{area } 20$ $C = 54.7^\circ$

17 $a = 4.5, b = 8, \text{area } 12$ $C = 41.8^\circ$

18 $a = 11, b = 13, \text{area } 60$ $C = 57.1^\circ$



The area and angle C are given. Find b . Lengths in cm, areas in cm^2 .

19 $a = 8, C = 30^\circ, \text{area } 24$ $b = 12$

20 $a = 5, C = 90^\circ, \text{area } 20$ $b = 8$

21 $a = 10, C = 150^\circ, \text{area } 35$ $b = 14$

22 $a = 6, C = 60^\circ, \text{area } 6\sqrt{3}$ $b = 4$

23 $a = 12, C = 30^\circ, \text{area } 45$ $b = 15$

24 $a = 9, C = 90^\circ, \text{area } 54$ $b = 12$



Three sides are given. Find the area to 1 dp. Lengths are in cm.

25 $a = 5, b = 6, c = 7$ 14.7 cm^2

26 $a = 8, b = 9, c = 10$ 34.2 cm^2

27 $a = 4, b = 7, c = 9$ 13.4 cm^2

28 $a = 10, b = 10, c = 12$ 48.0 cm^2

29 $a = 6, b = 8, c = 11$ 23.4 cm^2

30 $a = 3, b = 5, c = 7$ 6.5 cm^2